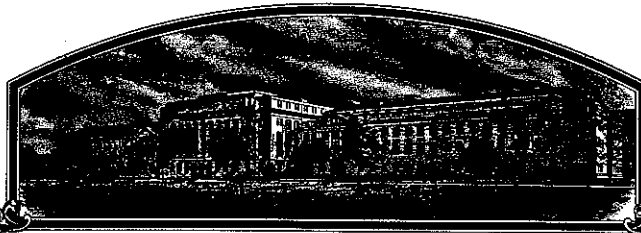


No.

8400128



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Pioneer Hi-Bred International, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICATION INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'G80'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 26th day of July in the year of our Lord one thousand nine hundred and eighty-five.

Attest

*Kenneth A. Evans*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*John R. Block*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

FORM APPROVED: OMB NO. 0581-0005

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.		2. TEMPORARY DESIGNATION		3. VARIETY NAME G80	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) Plant Breeding Division Department of Corn Breeding PO Box 85, Johnston, IA 50131-0085		5. PHONE (Include area code) 515/270-3300		FOR OFFICIAL USE ONLY VPPO NUMBER 8400128	
6. GENUS AND SPECIES NAME Zea mays		7. FAMILY NAME (Botanical) Gramineae		FILING DATE June 18, 1984 TIME 1:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.	
8. KIND NAME Corn		9. DATE OF DETERMINATION 1979		FEE RECEIVED AMOUNT FOR FILING \$ 1,800 DATE June 18, 1984 AMOUNT FOR CERTIFICATE \$ 200.00 DATE 6/20/85	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				12. DATE OF INCORPORATION May 6, 1926	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Iowa					
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Dr. Richard L. McConnell Plant Breeding Division Pioneer Hi-Bred International, Inc. PO Box 85 Johnston, IA 50131-0085					
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED					
a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.) d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of the Variety					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input checked="" type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No		17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified			
18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No					
19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT Pioneer Hi-Bred International, Inc. by:				DATE	
SIGNATURE OF APPLICANT Richard L. McConnell				DATE June 1, 1984 1	

## C O R N

'G80'

## 14A. Exhibit A. Origin and Breeding History

Pedigree: 495/331)X4X1111

Pioneer line 'G80', Zea mays L., a yellow dent corn inbred, was developed by Pioneer Hi-Bred International, Inc. from the single cross 495 x 331 using the pedigree method of breeding. The progenitors of G80 are proprietary inbred lines of Pioneer Hi-Bred International, Inc. Selfing and selection was practiced within the above cross for seven generations in the development of 'G80'. The inbred line was developed at Johnston, Iowa, with alternate nursery selections being made at Homestead, Florida. During line development, the F4 generation was crossed to an inbred tester for the purpose of estimating the line's combining ability. Yield trials were grown in 1977 and 1978. Additional hybrid combinations have been evaluated and subsequent generations of the line have been grown and hand-pollinated with observations made for uniformity.

G80 has shown uniformity and stability for all traits as described in Exhibit C (form LPGS-470-28) - "Objective Description of Variety." It has been self-pollinated and ear-rowed a sufficient number of generations with careful attention paid to uniformity of plant type to assure genetic homozygosity and phenotypic stability. The line has been increased both by hand and in isolated fields with continued observation for uniformity.

Pioneer Hi-Bred International, Inc., Des Moines, Iowa, is the employer of the plant breeders involved in the selection and development of 'G80'. Pioneer Hi-Bred International, Inc. has the sole rights and ownership of 'G80'.

8400128

4B. Exhibit B. Novelty Statement

'G80' is most similar to the public inbred line B37 for appearance and maturity. G80 sheds pollen and silks approximately 20 and 30 heat units, respectively, earlier than B37. G80 has green anthers and green silk while B37 has red anthers and green silk. G80 is also shorter and lower eared than B37.

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Corn)

OBJECTIVE DESCRIPTION OF VARIETY  
CORN (ZEA MAYS)

NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.	FOR OFFICIAL USE ONLY PVPO NUMBER 8400128
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) Plant Breeding Division Department of Corn Breeding P. O. Box 85 Johnston, IA 50131-0085	VARIETY NAME OR TEMPORARY DESIGNATION G80

Place the appropriate number that describes the varietal character of this variety in the boxes below.  
Place a zero in first box (e.g., 0 8 9 or 0 9 ) when number is either 99 or less or 9 or less.

## 1. TYPE:

2

1 = SWEET      2 = DENT      3 = FLINT      4 = FLOUR      5 = POP      6 = ORNAMENTAL

## 2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

2

1 = NORTHWEST      2 = NORTHCENTRAL      3 = NORTHEAST      4 = SOUTHEAST  
5 = SOUTHCENTRAL      6 = SOUTHWEST      7 = MOST REGIONS

## 3. MATURITY (In Region of Best Adaptability):

(Under "comments" (pg. 3) state how  
heat units were calculated)

7 1

DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK

1 5 3 0

HEAT UNITS

DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY

HEAT UNITS

DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE

HEAT UNITS

## 4. PLANT:

1 8 6

CM. HEIGHT (To tassel tip)

0 6 3

CM. EAR HEIGHT (To base of top ear)

0 8

CM. LENGTH OF TOP EAR INTERNODE

## Number of Tillers:

1

1 = NONE      2 = 1-2      3 = 2-3      4 = > 3

## Number of Ears Per Stalk:

1

1 = SINGLE      2 = SLIGHT TWO-EAR TENDENCY  
3 = STRONG TWO-EAR TENDENCY      4 = THREE-EAR TENDENCY

## Cytoplasm Type:

1

1 = NORMAL      2 = "T"      3 = "S"      4 = "C"      5 = OTHER (Specify) \_\_\_\_\_

## 5. LEAF (Field Corn Inbred Examples Given):

## Color:

3

1 = LIGHT GREEN (HY)      2 = MEDIUM GREEN (WF9)      3 = DARK GREEN (B14)      4 = VERY DARK GREEN (K166)  
(Observed olive-green)

## Angle from Stalk (Upper half):

2

1 = < 30°      2 = 30-60°      3 = > 60°

## Sheath Pubescence:

1

1 = LIGHT (W22)      2 = MEDIUM (WF9)  
3 = HEAVY (OH26)

## Marginal Waves:

2

1 = NONE (HY)      2 = FEW (WF9)      3 = MANY (OH7L)

## Longitudinal Creases:

1

1 = ABSENT (OH51)      2 = FEW (OH56A)  
3 = MANY (PA11)

## Width:

1 1

CM. WIDEST POINT OF EAR NODE LEAF

## Length:

0 8 1

CM. EAR NODE LEAF

1 7

NUMBER OF LEAVES PER MATURE PLANT

## 6. TASSEL:

0 5

NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

1

1 =  $< 30^\circ$ 2 =  $30-40^\circ$ 3 =  $> 45^\circ$ 

Penduncle Length:

1 5

CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

1

1 = LIGHT (WF9)

2 = MEDIUM

3 = HEAVY (KY21)

5

Anther Color:

1 = YELLOW

2 = PINK

3 = RED

4 = PURPLE

5 = GREEN

5

Glume Color:

6 = OTHER (Specify) \_\_\_\_\_

Pollen Restoration for Cytoplasm (o = Not Tested, 1 = Partial, 2 = Good)

0

"T"

0

"S"

0

"C"

OTHER (Specify Cytoplasm and degrees of restoration) \_\_\_\_\_

## 7. EAR (Husked Ear Data Except When Stated Otherwise):

1 6

CM LENGTH

3 7

MM. MID-POINT  
DIAMETER

8 9

GM. WEIGHT

Kernel Rows:

2

1 = INDISTINCT

2 = DISTINCT

1 6

NUMBER

2

1 = STRAIGHT

2 = SLIGHTLY CURVED

3 = SPIRAL

Silk Color (Exposed at Silking Stage):

1

1 = GREEN

2 = PINK

3 = SALMON

4 = RED

Husk Color:

2

FRESH

1 = LIGHT GREEN

2 = DARK GREEN

3 = PINK

6

DRY

4 = RED

5 = PURPLE

6 = BUFF

Husk Extension: (Harvest Stage)

1

1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)  
3 = LONG (8-10CM Beyond Ear Tip)  
4 = VERY LONG ( $> 10$  CM)

Husk Leaf:

3

1 = SHORT ( $< 8$  CM) 2 = MEDIUM (8-15 CM)  
3 = LONG ( $> 15$  CM)

Shank:

1 5

CM LONG

8

NO. OF INTERNODES

Position at Dry Husk Stage:

3

1 = UPRIGHT

2 = HORIZONTAL

3 = PENDENT

Taper:

1

1 = SLIGHT

2 = AVERAGE

3 = EXTREME

Drying Time (Unhusked Ear):

1 = SLOW

2 = AVERAGE

3 = FAST

## 8. KERNEL (Dried):

Size (From Ear Mid-Point):

0 8

MM LONG

0 7

MM. WIDE

0 3

MM. THICK

Shape Grade (% Rounds)

2

1 =  $< 20$ 

2 = 20-40

3 = 40-60

4 = 60-80

5 =  $> 80$

## 8. KERNEL (Dried) :

8400128

**1** Pericarp Color: 1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE  
5 = BROWN 6 = LIGHT RED 7 = CHERRY RED  
8 = VARIEGATED (Describe) \_\_\_\_\_

**1** Aleurone Color: 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) \_\_\_\_\_

**1** 1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED  
7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) \_\_\_\_\_

**3** Endosperm Color: 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

**3** 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH  
5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) \_\_\_\_\_

**1 9** GM. WEIGHT /100 SEEDS (Unsize Sample)

## 9. COB:

**2 4** MM. DIAMETER AT MID-POINT

Strength: 1 = WEAK 2 = STRONG

Color: (Observed pale reddish brown)

**4** 1 = WHITE 2 = PINK 3 = RED 4 = BROWN  
5 = VARIEGATED 6 OTHER (Specify) \_\_\_\_\_

## 10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

**2** STALK ROT (Diplodia) **2** Tolerant: **2** STALK ROT (Gibberella)

**2** NORTHERN LEAF BLIGHT **1** SOUTHERN LEAF BLIGHT **0** SMUT

**0** SOUTHERN RUST **0** CORN SMUT **2** BACTERIAL WILT (Stewart's)

**2** BACTERIAL LEAF BLIGHT (GOSS) **1** MAIZE DWARF MOSAIC **0** STUNT

**1** OTHER (Specify) \_\_\_\_\_

## 11. INSECT RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

**1** CORNBORER **1** EARWORM **0** SAPBEETLE **1** APHID

**0** ROOTWORM (Northern) **1** ROOTWORM (Western)

**0** ROOTWORM (Southern) **1** OTHER (Specify) \_\_\_\_\_

## 12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	B37	Kernel Type	B37
Plant Type	B37	Quality (Edible)	
Ear Type	B37	Usage	B73

## REFERENCES:

- U.S. Department Agriculture. Yearbook 1937.
- Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous Authors)
- Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.
- The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.
- Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.
- Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS: Heat units are accumulated from daily temperatures as follows:

HI = Maximum air temperature in Fahrenheit, but not greater than 86.

LO = Minimum air temperature in Fahrenheit, but not less than 50.

Heat Units = (HI + LO)/2 - 50, but not less than 0.

## 14D. Exhibit D. Additional Description of G80.

'G80' is a yellow dent inbred line of corn, Zea mays L.

As an inbred per se, G80 is similar to public inbred line B37 in a number of plant and seed characteristics. However, there are some distinguishable differences between the two inbreds as stated in Exhibit B.

G80 has above average tolerance to Helminthosporium leaf spot (Helminthosporium carbonum) and common rust (Puccinia sorghi). It has average tolerance to eye spot (Kabatella zeae) and anthracnose stalk rot (Colletotrichum graminicola). G80 is susceptible to gray leaf spot (Cercospora zeae), the leaf phase of anthracnose (Colletotrichum graminicola), downy mildew (Peronosclerospora sorghi), maize dwarf mosaic virus complex, and corn lethal necrosis virus disease.

Distinguishing characteristics of hybrids in which G80 is a parent are high yields for maturity, fast grain dry down, average standability, and below average stay green (late season plant health). G80 hybrids are best adapted to the mid-maturity Corn Belt areas. G80 hybrids are shorter and lower eared relative to other hybrids of similar maturity.

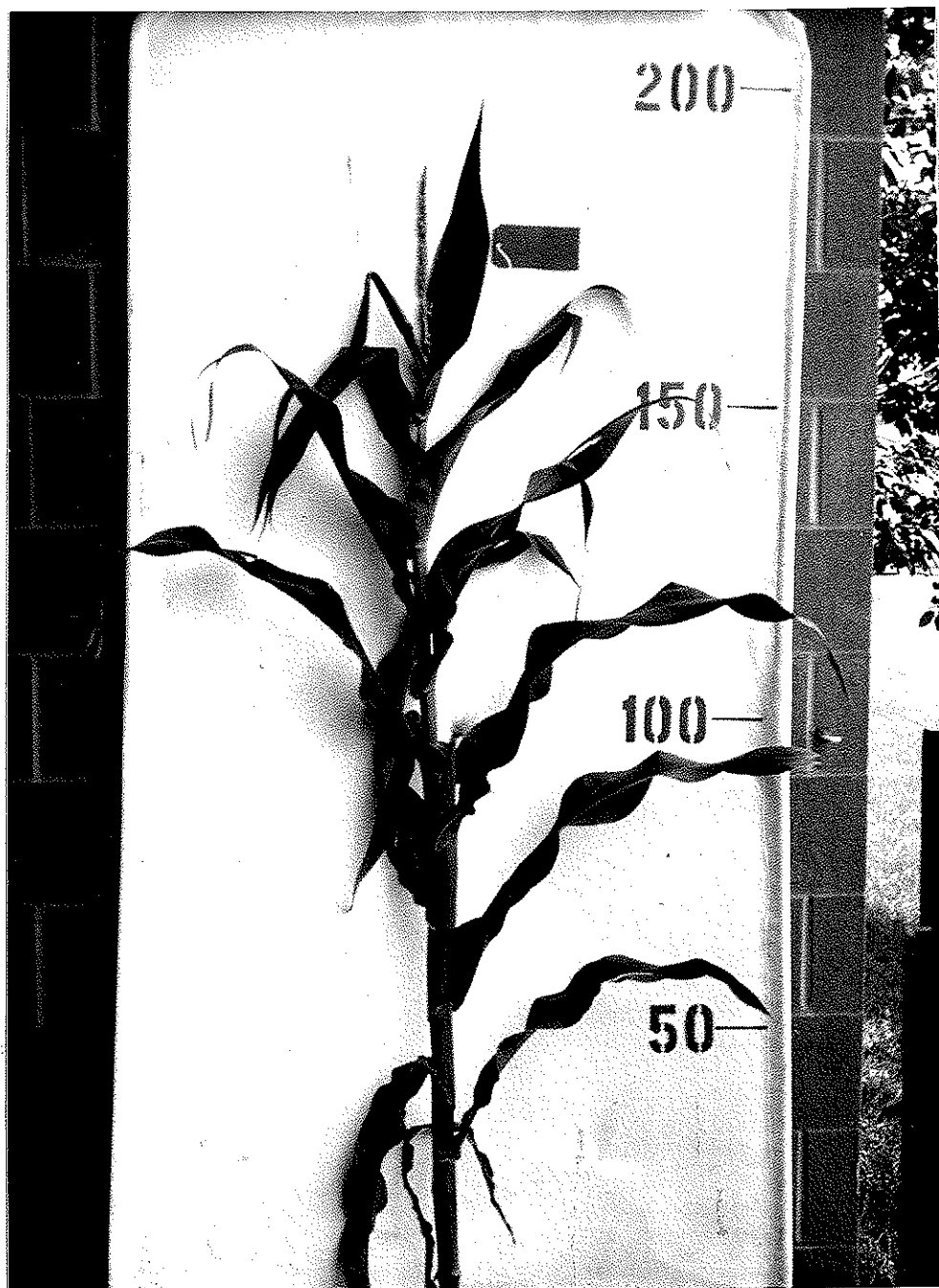
For comparative purposes, data are attached with comparisons of G80 to public inbred line B73 (crossed to the same tester line and evaluated in the same locations).

14D. Exhibit D. Comparison of G80 and B73 crossed to the same tester line and the hybrids evaluated at the same locations. All values are expressed as percent of the test mean except yield, which is expressed as bushels/acre adjusted to 15.5% grain moisture (1983 data).

	Inbred	Yield	Percent Yield	Moisture	GDU Shed	Stalk Lodging	Root Lodging	Ears/Plot	Stay Green	Test Weight	Grain Quality	Cob Scores	Seedling Vigor	Plant Height	Ear Height		
No. of Reps.		708	708	708	144	690	279	282	354	699	468	171	360	303	303		
	G80	130	108	100	99	101	103	103	99	101	101	107	100	96	95		
	B73	126	105	104	100	100	97	101	91	103	108	99	98	101	106		
Diff.		4	3	4	1	1	6	2	8	2	7	8	2	5	11		

14D. Exhibit D. Additional Description of G80 (continued).

a. Whole plant



14D. Exhibit D. Additional Description of G80 (continued).

b. Tassel

